

## CLAIMS

What is claimed is:

1. A monitoring system for a motor comprising:  
a plurality of sensors for monitoring operating conditions of a motor;  
and  
a removable data storage device for storing data relating to the monitored operating conditions.
2. The monitoring system according to claim 1 further comprising:  
a database having stored therein tolerance values for operating conditions.
3. The monitoring system according to claim 2 further comprising:  
a data analysis component for comparing the data relating to the monitored operating conditions to the tolerance values in the database, and configured to provide a warning indication when a tolerance value is exceeded.
4. The monitoring system according to claim 3 further comprising:  
a signal conditioning component configured to convert a signal representative of an operating condition from the plurality of sensors for input to the data analysis component.

5. The monitoring system according to claim 1 wherein the operating conditions comprise at least one of bearing temperature, winding temperature, ambient temperature, oil condition, vibration, insulation resistance and current, and wherein the plurality of sensors are configured to separately monitor each of the operating conditions.

6. The monitoring system according to claim 1 wherein the removable data storage device is configured for remote interface and access of the stored data.

7. The monitoring system according to claim 1 wherein the monitoring system is configured to be powered from a power source powering the motor being monitored.

8. The monitoring system according to claim 1 further comprising:  
a user activated component for generating a signal when activated by a user, the signal indicating a condition relating to an external operating condition of the motor.

9. A monitoring device for monitoring operating conditions of an electric motor, the monitoring device comprising:

a programmable device for receiving data relating to the monitored operation conditions and configured to determine whether an operating condition threshold is exceeded; and

a data storage device for storing the received data and configured for removable connection to the programmable device.

10. The monitoring device according to claim 9 further comprising:

a database having stored therein tolerance values for operating conditions, and wherein the programmable device is configured to compare the monitored operating conditions to the tolerance values to determine whether the operating condition threshold is exceeded.

11. The monitoring device according to claim 9 wherein the programmable device is configured to provide a warning indication when an operating condition threshold is exceeded.

12. The monitoring device according to claim 9 wherein the operating conditions comprise at least one of bearing temperature, winding temperature, ambient temperature, oil condition, vibration, insulation resistance and current, and further comprising:

a plurality of sensors configured to separately monitor each of the operating conditions.

13. The monitoring device according to claim 9 further comprising:

a signal conditioning component configured to convert a signal representative of an operating condition for input to the programmable device.

14. The monitoring device according to claim 9 wherein the data storage device is configured for remote interface and access of the stored data.

15. The monitoring device according to claim 14 wherein the data storage device comprises a memory card for connection to a remote device for accessing the stored data.

16. The monitoring device according to claim 9 wherein the monitoring device is adapted for connection to the electric motor and configured for receiving power therefrom.

17. The monitoring device according to claim 9 wherein the programmable device is configured to store data to the data storage device at predetermined time intervals and maintaining storage of the data for a predetermined time period.

18. A method for monitoring the operating conditions of a motor, the method comprising:

monitoring at least one operating condition of the motor;

determining whether the at least one monitored operating condition exceeds a threshold; and

storing data relating to the at least one monitored operating condition in a removable data storage device.

19. The method according to claim 18 wherein the step of storing comprises periodically storing the data.

20. The method according to claim 18 wherein the determining comprises comparing the at least one monitored operating condition to a tolerance threshold to determine when the threshold is exceeded.

21. The method according to claim 18 wherein the monitoring comprises separately monitoring each of a plurality of operating conditions at the same time.

22. The method according to claim 18 further comprising:  
providing a warning indication when the at least one monitored operating condition is determined to exceed a threshold.

23. A method for monitoring the operating conditions of an electric motor in a nuclear power plant, the method comprising:

measuring separately a plurality of operating conditions of the motor,  
the operating conditions monitored at the same time;

determining whether any of the measured operating conditions exceed  
a threshold;

providing a warning indication when the threshold is exceeded; and

storing data relating to the at least one measured operating condition in  
a removable data storage device.